

Remarks/Arguments

Claims 1-40 are pending in this application. Claims 1, 2, 8-13, 16, 24-27, 29, 32-34, 37, 39 and 40 were rejected under U.S.C. § 102(e) as allegedly unpatentable over Patent Publication U.S. 2002/0084183 A1 (“Hanson”). Claims 3, 4, 18-21 and 30 were rejected under U.S.C. § 103(a) as allegedly unpatentable over Hanson in view of U.S. Patent No. 6,540,899 (“Keigler”). Independent claims 1 and 24 have been amended to further clarify the patentable distinctions between these claims and the teachings of Hanson, as understood.

Claims 1-23

The “flow path” element of claim 1 has been amended to recite:

a flow path defining a passage for plating fluid to flow from inside the apparatus to outside the apparatus, said flow path residing in a region between the field shaping region and the cup and having an inlet on the inside of the apparatus and proximate the cup’s lip and an outlet on the outside of the apparatus and positioned such that the outlet is at a higher elevation than the inlet when the apparatus oriented for use with the cup above the field shaping element

This amendment is supported, for example, by Fig. 1E of the present application. Flow path 147 is defined by field shaping element 127 and cup 125. The inlet of this defined region is proximate lip 131 of cup 125.

Hanson states the following (referring to Fig. 1):

The processing fluid received by the fluid inlet 155 initially enters the second fluid flow region 100 of the cup assembly 65 via the space 165 formed between the electrode housing assembly 70 and the process cup assembly 75. The processing fluid generally follows a flow corresponding to the direction of arrows

illustrated in FIG. 1. While in the second fluid flow region 100, the processing fluid comes into contact with the workpiece 45 when in a processing position.

(Id. at paragraph [0046].)

Hanson describes field shaping elements 195 and 200 as follows:

FIGS. 5 and 6 are isometric views of two embodiments of field shaping elements 195, 200 that may be used in the reactor 10. The field shaping elements 195, 200 generally each comprise a single plate of material having one or more openings through which plating fluid and/or current is enabled to flow. Depending on the opening pattern a more controlled distribution of plating fluid and current across the surface of the workpiece 45 can be achieved.

(Id. at paragraph [0058].)

As understood, Hanson teaches the use of field shaping elements 195 and/or 200 to control the distribution of plating fluid and/or current. According to Fig. 7, field shaping elements 195, 200 are disposed parallel to, and upstream from, workpiece 45. Hanson, as understood, fails to teach, suggest or indicate a flow path “residing in a region between the field shaping region and the cup and having an inlet on the inside of the apparatus and proximate the cup’s lip.” Accordingly, claim 1 is patentable over Hanson. Claims 2-23 are therefore patentable as being dependent from patentable claim 1.

Claims 24-40

The “directing” step of claim 24 has been amended to recite:

while plating, directing a plating fluid through a flow path defining a passage for the plating fluid to flow from inside the apparatus to outside the apparatus, said flow path defined by the cup and the field shaping element, having an inlet on the inside of the apparatus and an outlet on the outside of the apparatus and positioned such that the outlet is at a higher

elevation than the inlet, whereby gas present in a portion of the plating fluid in the flow path travels toward the outlet due to its buoyancy.

This amendment is supported, for example, by Fig. 1E of the present application. Flow path 147 is defined by field shaping element 127 and cup 125.

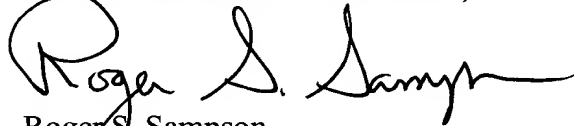
For reasons including those set forth above regarding claims 1-23, Applicants' attorney believes that Hanson fails to teach, suggest or indicate a "flow path defined by the cup and the field shaping element." Accordingly, claim 24 is patentable over Hanson. Claims 25-40 are therefore patentable as being dependent from patentable claim 24.

Conclusion

In view of the foregoing, it is believed that the rejections of all claims pending in this application, namely claims 1-40, have been overcome. Accordingly, an early notification that the application is in condition for allowance is earnestly solicited.

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Roger S. Sampson", is written over the printed name.

Roger S. Sampson
Reg. No. 44,314

P.O. Box 778
Berkeley, CA 94704-0778
510-843-6200